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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,204	01/20/2004	Akira Shimizu	NIT-407	7747

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EXAMINER

BORKOWSKI, ROBERT

ART UNIT	PAPER NUMBER
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2181

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/759,204	SHIMIZU ET AL.	
	Examiner	Art Unit	
	Robert Borkowski	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/20/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 03/31/2003. It is noted, however, that applicant has not filed a certified copy of the 2003-093140 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Imai et al. (U.S. Patent No. 5,870,467).

As to claim 1, Imai et al. discloses an IO-requesting method of issuing an IO request (column 8 lines 15-35, Fig. 1 element 11) to a storage apparatus (column 8 line 64 thru column 9 line 7) of a computer system by execution of a program in said computer system (column 8 lines 15-35), wherein a program identifier set in advance (column 9 lines 8-21) in said program and a request address are applied to a first function for inputting two values to generate one value used as a new address with said program identifier appended thereto, and said IO request is issued by using said new

address (column 4 lines 35-60, column 5 lines 16-47, column 26 lines 18-45, Fig. 1 element 11).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. (U.S. Patent No. 5,870,467) in view of Umebayashi et al. (U.S. Patent Application Publication No. US 2004/0010707 A1).

As to claim 2, Imai et al. discloses a computer executing a first program issuing an IO request to a storage apparatus and a second program for collecting said IO request and transmitting said IO request as an IO command to said storage apparatus (column 6 lines 12-52) wherein:

a program identifier set in advance in said first program (column 9 lines 8-23, Fig. 1 element 11) and a request address are applied to a first function for inputting two values, that is, said program identifier and said request address, to generate one value used as a new address with said program identifier appended thereto, and said IO

request is issued by using said new address (column 4 lines 35-60, column 5 lines 16-47, column 26 lines 18-45, Fig. 1);

if said IO request is an IO request issued to a logical volume existing in said storage apparatus as a logical volume prescribed to be a protected logical volume, a second function for carrying out an operation to input one value for generation of two output values as an operation inverse to that of said first function generates an original request address and a program identifier, that is, said two output values, from said one input value, that is an address specified in said IO request as said new address; (column 4 lines 35-60, column 5 lines 16-47, column 26 lines 18-45, Fig. 1)

said second program has a table associating a program identifier, a logical volume existing in said storage apparatus and a network address with each other (column 6 lines 12-34).

Imai et al. does not disclose wherein said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address.

Umebayashi et al. discloses wherein said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a

transmission originator in order to issue an IO command to said original request address (paragraphs 41-43, Fig. 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. to include wherein said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address (paragraphs 41-43, Fig. 1).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. by the teaching of Umebayashi et al. because including said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address (paragraphs 41-43, Fig. 1) would prevent a possibility for a malicious system manager to rewrite the access rights for writing data, or to utilize the writing data improperly under by reading and writing under the right given to the system manager (column 2 lines 47-52 of Imai et al.).

As to claim 3, Imai et al. discloses a computer system comprising one or more computers and one or more storage apparatus connected to said computers by a network apparatus (column 8 lines 45-65, Fig. 1) wherein:

in each of said computers:

a first program issuing an IO request (column 9 lines 8-23, Fig. 1 element 11) to a storage apparatus and a second program for collecting said IO request (Fig. 1 element 10) and transmitting said IO request as an IO command to said storage apparatus are executed (column 8 lines 45-65, Fig. 1);

a program identifier set in advance in said first program (column 9 lines 8-23, Fig. 1 element 11) and a request address are applied to a first function for inputting two values, that is, said program identifier and said request address, to generate one value used as a new address with said program identifier appended thereto, and said IO request is issued by using said new address (column 4 lines 36-60, column 5 lines 16-46, column 26 lines 18-45, Fig. 1);

said second program has a table associating a program identifier, a logical volume existing in said storage apparatus and a network address with each other (column 6 lines 12-34); and

if said IO request is an IO request issued to a logical volume existing in said storage apparatus as a logical volume prescribed to be a protected logical volume, a second function for carrying out an operation to input one value for generation of two output values as an operation inverse to that of said first function generates an original request address and a program identifier, that is, said two output values, from said one input value, that is an address specified in said IO request as said new address (column 4 lines 35-60, column 5 lines 16-47, column 26 lines 18-45, Fig. 1), and

on the basis of said network address used as an address of a transmission originator, said network apparatus determines whether or not a communication with said storage apparatus can be carried out (column 5 lines 16-47, Fig. 2 steps S24 and S27).

Imai et al. does not disclose wherein said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address.

Umebayashi et al. discloses wherein said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address (paragraphs 41-43, Fig. 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. to include wherein said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address (paragraphs 41-43, Fig. 1).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. by the teaching of Umebayashi et al. because including said table is searched for a network address associated with said generated program identifier and a logical volume indicated by said generated original request address and a communication with said storage apparatus is carried out by using said network address as an address of a transmission originator in order to issue an IO command to said original request address (paragraphs 41-43, Fig. 1) would prevent a possibility for a malicious system manager to rewrite the access rights for writing data, or to utilize the writing data improperly under by reading and writing under the right given to the system manager (column 2 lines 47-52 of Imai et al.).

As to claim 4, Imai et al. discloses wherein, in place of said network apparatus, said storage apparatus determines whether or not an access to a logical volume existing in said storage apparatus can be made (column 6 lines 12-34).

As to claim 5, Imai et al. discloses an access control method adopted for a storage apparatus said method comprises the steps of:

recognizing a received IO command as an IO command issued to a logical volume existing in said storage apparatus as a logical volume prescribed to be a logical volume protected from a received IO command (column 6 lines 12-34, column 8 lines 15-34, column 9 lines 8-23, Fig. 2 steps S24 and S27);

using a second function for inputting one value to generate two output values as a function for obtaining a second address and a program identifier, that is, said two

output values, from said one value, that is a first address specified in said IO command (column 5 lines 15-59);

determining whether or not an access to said logical volume can be made on the basis of said program identifier and an association table (column 8 line 45 thru column 9 line 23); and

replacing said first address specified in said IO command with said second address and processing said IO command in case an access by using said IO command is determined to be an access that can be made (column 8 line 45 thru column 9 line 23, column 10 lines 10-50).

Imai et al. does not disclose wherein said association table is provided as a table for associating a logical-volume identifier with a program identifier for identifying a program allowed to make an access to a logical volume identified by said logical-volume identifier.

Umebayashi et al. discloses wherein said association table is provided as a table for associating a logical-volume identifier with a program identifier for identifying a program allowed to make an access to a logical volume identified by said logical-volume identifier (paragraphs 41-43, Fig. 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. to include wherein said association table is provided as a table for associating a logical-volume identifier with a program identifier for identifying a program allowed to make an access to a logical volume identified by said logical-volume identifier.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. by the teaching of Umebayashi et al. because including said association table is provided as a table for associating a logical-volume identifier with a program identifier for identifying a program allowed to make an access to a logical volume identified by said logical-volume identifier would prevent a possibility for a malicious system manager to rewrite the access rights for writing data, or to utilize the writing data improperly under by reading and writing under the right given to the system manager (column 2 lines 47-52 of Imai et al.).

As to claim 6, Imai et al. discloses an access control method adopted for a storage apparatus said method comprises the steps of:

recognizing a received IO command as an IO command included in a packet transmitted through a network as an IO command issued to a logical volume existing in said storage apparatus as a logical volume prescribed to be a logical volume protected from a received IO command (column 5 lines 15-59, column 8 line 45 thru column 9 line 23);

using a second function for inputting one value to generate two outputs as a function for obtaining a second address and a program identifier, that is, said two output values, from said one value, that is, a first address specified in said IO command (column 5 lines 15-59);

determining whether or not said pocket can be transferred to said storage apparatus on the basis of said program identifier and an association table (column 8 line 45 thru column 9 line 23); and

replacing said first address specified in said IO command with said second address and transmitting said packet in case an access by using said IO command is determined to be an access that can be made (column 8 line 45 thru column 9 line 23, column 10 lines 10-50).

Imai et al. does not disclose wherein said association table is provided as a table for associating a storage-apparatus identifier for identifying said storage apparatus, a logical-volume identifier for identifying a logical volume existing in said storage apparatus and a program identifier for identifying a program allowed to make an access to said logical volume identified by said logical-volume identifier with each other***.

Umebayashi et al. discloses wherein said association table is provided as a table for associating a storage-apparatus identifier for identifying said storage apparatus, a logical-volume identifier for identifying a logical volume existing in said storage apparatus and a program identifier for identifying a program allowed to make an access to said logical volume identified by said logical-volume identifier with each other (paragraphs 41-43, Fig. 1).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. to include wherein said association table is provided as a table for associating a storage-apparatus identifier for identifying said storage apparatus, a logical-volume identifier for identifying a logical volume existing in said storage apparatus and a program identifier for identifying a program allowed to make an access to said logical volume identified by said logical-volume identifier with each other.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Imai et al. by the teaching of Umebayashi et al. because including said association table is provided as a table for associating a storage-apparatus identifier for identifying said storage apparatus, a logical-volume identifier for identifying a logical volume existing in said storage apparatus and a program identifier for identifying a program allowed to make an access to said logical volume identified by said logical-volume identifier with each other would prevent a possibility for a malicious system manager to rewrite the access rights for writing data, or to utilize the writing data improperly under by reading and writing under the right given to the system manager (column 2 lines 47-52 of Imai et al.).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents have been made of record of to further show the input/output management suitable for protection of electronic writing data.

- 1) Baum et al. U.S. Patent No. 5,023,773 A
- 2) Ankney et al. U.S. Patent No. 5,113,499 A
- 3) Grube et al. U.S. Patent No. 5,602,916 A
- 4) Pearce, John J. U.S. Patent No. 5,657,445 A
- 5) Wu et al. U.S. Patent No. 5,848,279 A
- 6) Golding, Richard A. U.S. Patent No. 6,292,876 B1
- 6) Scheussler et al. U.S. Patent No. 6,366,950 B1


- 8) Pujare et al. U.S. Patent Application Publication No. 2002/0083183 A1
- 9) Wohlgemuth et al. U.S. Patent Application Publication No. 2002/0087883 A1
- 10) Lee, Michele C. U.S. Patent Application Publication No. 2002/0147746 A1
- 11) Gabor et al. U.S. Patent Application Publication No. 2004/0117657 A1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Borkowski whose telephone number is 571-272-8626. The examiner can normally be reached on Monday - Friday 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HUYNH KIM NGOC can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert Borkowski
AU 2181
January 26, 2006


KIM HUYNH
SUPERVISORY PATENT EXAMINER
2/2/06